June 2005
900165-001 - Rev 00

TouchTunes MUSIC CORPORATION

Setting up a broadband Internet connection

Introduction

Starting with software version 2.2.3-18 and above, the jukebox is capable of using a *broadband* connection to the Internet to communicate nightly with the TouchTunes servers. For this to work, the jukebox requires:

- A broadband connection to the public Internet: Typically this is a DSL or Cable connection to the Internet. It can also be a Frame Relay, T1, or satellite connection.
- A DHCP server: This is a device, typically a router, that hands out the required Internet settings to the jukebox. Rather than manually configure the main settings for an Internet connection, the DHCP server provides this information to all computers requesting it and makes sure that no duplicate addresses are handed out. The router also allows you to share the Internet connection with multiple computers.

Important terms

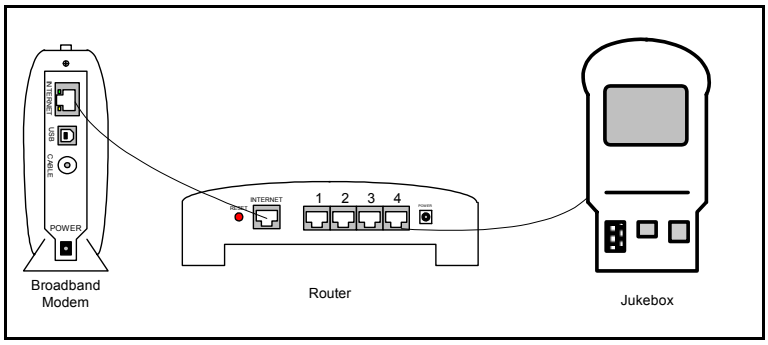
- Router: A device that makes sure information from one device is routed along the most efficient path to the destination device. It allows the sharing of one internet connection between multiple computers. The router allows two subnets to communicate with each other. Routers require two IP addresses, an external and an internal address. The external IP (also referred to as WAN IP or Public IP) needs to be on the same subnet as the device directly above it in the chain. The internal IP (also referred to as LAN IP or private IP) is on its own subnet, typically starting with an the address 192.168.x.x.
- Subnet: A smaller division of a network of devices grouped together for performance and security reasons. Only devices on the same subnet can communicate with each other unless a router is used to connect the two subnets.
- Subnet Mask: There are 2 components to an IP address. The subnet name and the device #. The subnet mask is used to define what part of the IP address is used to name the network and what part is used for the device #. An IP address of 192.168.90.10 with a subnet mask of 255.255.255.0 means that 192.168.90.x is the subnet name and the .10 refers to the 10th device on that subnet.
- DHCP Addressing: Dynamic Host Configuration Protocol. Allows one device (typically a router) to act as a server that hands out the five basic Internet settings to multiple computers. IP Address, Subnet, Gateway, DNS Primary, DNS Secondary.
- Static Addressing: If no DHCP server is available, the five basic Internet settings must manually be configured on each device
- Gateway: A device that allows a LAN (Local Area Network or the computers in one location) to talk to a WAN (Wide Area Network or Internet). A router has this functionality built in.
- DNS: A DNS server lets you locate computers on a network or the Internet (TCP/IP network) by domain name (like www.yahoo.com). The DNS server maintains a database of domain names and their corresponding IP addresses (66.94.234.13).

Before heading to the location

Before heading for the location to setup your broadband jukebox, please consider the following:

- You should have a computer available on site (preferably a laptop) equipped with a network card and a web browser (Internet Explorer).
- You will also need one of the routers specified in this document or an equivalent.
- You will need setup information that is provided by the Internet Service Provider (ISP). Use the Site Survey to gather necessary information.
- You will need extra cat-5 network cables for the broadband connection. The number and length will be determined by your setup.

Setup overview



The jukebox and router are connected as follows:

1. The broadband Internet connection is connected to broadband modem.
2. The broadband modem is connected to the router.
3. The router is connected to the jukebox and any other devices sharing the broadband Internet connection.
4. The router is configured to DHCP or Static Addressing depending on the requirements of the broadband provider. For static addresses, you need to enter IP Address, Subnet Mask, Gateway, Primary DNS, and Secondary DNS.
5. Turn on ***Broadband*** in the Jukebox software (***System Settings > Configure***)
6. Go to ***Diagnostics*** menu and press ***Call Now*** to test communications.

Setting up the connection

1 Determine the configuration requirements of the Internet connection.

- Does the internet connection have a router with DHCP turned on? If yes, then skip to step 2.
- If no, then this will require adding a router to act as a DHCP server

a. Connect the router to the broadband connection. This will either be directly to broadband modem or to another router that has DHCP turned off, or to a switch that is connected to a router.

b. Configure the router. Most routers are configured using a web browser. Connect a computer up to the router via one of its LAN ports. In the address bar of your web browser, type in the internal IP of the router (typically this is 192.168.0.1, consult your router manual for additional help). The following illustration shows the setup for programming a NetGear Router.

- If the broadband connection requires a password, enter the login information.
- Set the IP Address. If your broadband connection has DHCP, select DHCP. If not, you must manually type in an available IP address.
- (3) If you are not using DHCP, fill in these settings:

  (a) IP Subnet Mask

  (b) Gateway Address
- Set DNS Info. If your broadband connection has DHCP, select Get Automatically from ISP. If not, you must manually specify a Primary and Secondary DNS server
- Apply Settings

2 Connect All Devices

(Some devices may have already been connected in previous steps.)

a. Broadband modem connects to the WAN (Internet port) on the router.

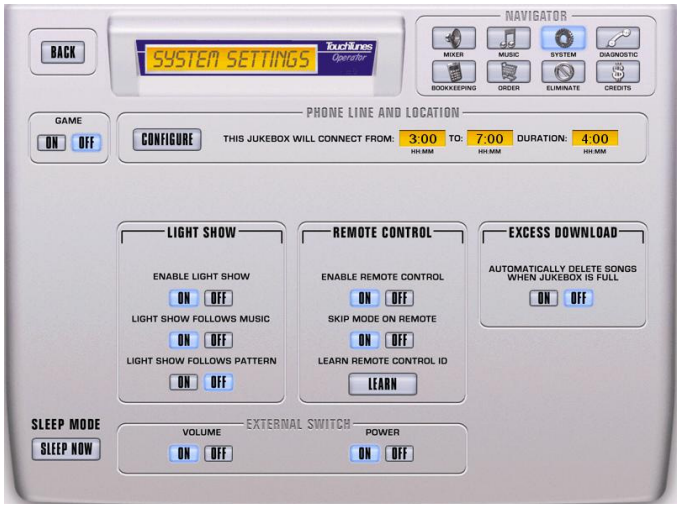
b. Connect jukebox, Tune Central (optional), Merit Countertops (optional) to open ports on the router.

c. If there are not enough open ports on the router, a switch may be connected to allow additional connections.

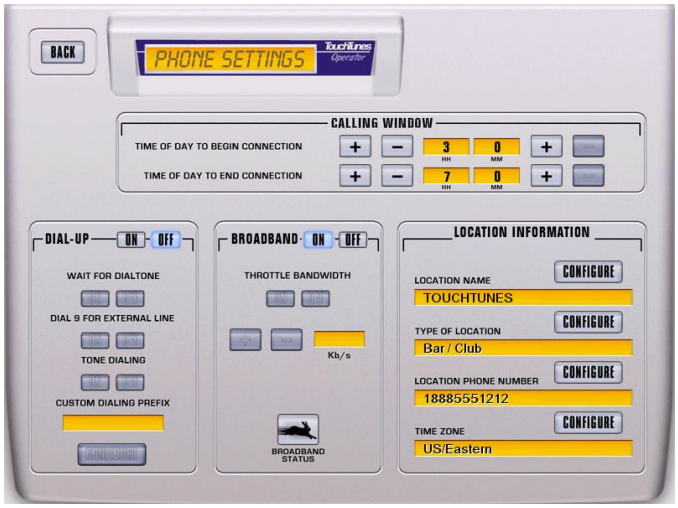
3 Configure the jukebox to use the broadband connection

a. Press the Manager button.

b. Touch ***System Settings***.

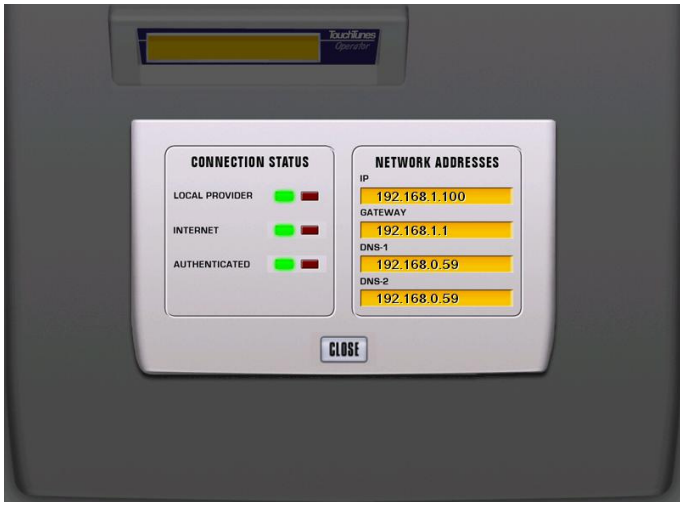


c. Touch ***Configure***.



d. Turn the ***Broadband*** option ***On***.

e. Touch the ***Broadband Status*** button.



It will take a few seconds for the jukebox tests the connection. You will see the Connection Status lights flashing.

Connection Status: This section displays the current status of the connection in 3 parts to help diagnose the source of a problem. The light should be green for Local Provider, Internet, and Authenticated.

Network Addresses: This section displays the current network addresses in use by the jukebox. This information is provided by the DHCP server built in the router.

f. Touch ***Close***.

g. Touch the ***Back*** button.

h. On the main menu, touch ***Diagnostics***.

i. Touch ***Call Now*** to force a call to TouchTunes servers.

j. The screen will show the progress of the communication session with TouchTunes. When complete, it should say "*Nothing more to do. Disconnecting.*"

k. Touch ***Back***, then ***Exit***.

Recommended equipment

The following tables list equipment that has been tested by TouchTunes.

Wired Routers	Compatible
D-Link DI-604	Yes
Linksys BEFSR41	Yes
Netgear RP614v2	Yes
Netgear RP614v3	Yes
SMC 7004VBR	Yes
USR 8003	Yes
Linksys/Vonage RT31P2	Yes

Wireless Routers*	Compatible
D-Link DI524	Yes
D-Link DI-624	Yes
Belkin F5D7230-4	Yes
Air Link 101 AR50	Yes
Trendnet TEN-431 BRP	Yes
Linksys/Vonage WRT5	Yes
Netgear WGR614	NO

* Tested in a wired configuration. TouchTunes does not recommend connecting via wireless.

Wireless Bridges**	Compatible**
Linksys WGA54G	Yes
D-Link Game Adapter	Yes
Netgear WGE111	Yes
Motorola WE800G	Yes

**TouchTunes does not recommend connecting via wireless. The list of wireless bridges is only a list of devices that other operators have said they have used successfully. Use at your own risk!

Frequently asked questions

1 Why should I set up the jukebox to use broadband?

- Broadband is a more reliable method of communicating through the internet. The quality of the phone lines at some locations do not work well for transmitting data. The phone company only promises to provide phone lines capable of transmitting voice, not data.
- Broadband can be less expensive than dial-up. The jukebox has to communicate nightly to transfer logs, download software updates, download music to the jukebox, update music to the tune central. When set to dial-up, the jukebox is calling a local phone # to connect to the internet. Depending on the local phone calling plan, this call can be a few cents per minute which can add up over time depending on how much music the jukebox is trying to download. A typical song download on dial-up takes 20 minutes, on broadband it's usually less than 1 minute.
- No phone line available at location
- Faster downloading of music
- Instant jukebox settings changes. When you make a change to a jukebox setting on the web tool, it will ask you when you log out if you want to make the changes immediately

2 Does TouchTunes charge extra to use broadband?

TouchTunes does not charge extra to use broadband. The only charge would be the charge from the broadband provider to the location.

3 What if the location doesn't have broadband?

Broadband service is usually provided by the local phone company and/or the cable company. Start with those companies. You can also look at www.broadband.com or www.dslreports.com for other providers.

4 How do I justify the cost of broadband to the location if they do not have it already?

- See Question 1.
- Use of internet for other equipment like Merit countertops.
- Use of internet for business.

5 I don't know anything about networking, is this something easy to setup?

The hardest part is gathering the info about the broadband connection. Once that's done, it's a matter of typing in a few settings on a computer to set up the router and running some standard cat5 cables, if you don't know how to make your own cables, they are available from most computer stores. TouchTunes Tech Support (888-711-5853) will be glad to help you walk through setting up broadband.

6 What do I do if it doesn't work?

Fill out as much of the “Broadband site survey” on page 7 as possible and call TouchTunes Tech Support (888-711-5853). They can guide you what to do next.

7 Is there somebody that can install this for me?

The jukebox follows standard computer networking practices. Look in the phone book under Computer Networking or Computer Repair/ Service for someone that does on-site work. They will be able to follow this instruction guide to setup broadband.

8 How do I make my own cables?

Check out the *How to make category 5 twisted-pair network cables g*uide from TouchTunes. TouchTunes also has a kit to help get you started making your own cables.

9 What router can I use?

The majority of the routers sold today are compatible with TouchTunes. Some common routers are:

- Netgear Web Safe Router RP614 (available from TouchTunes)
- D-Link DI-604
- Linksys BEFSR41
- SMC 7004VBR
- USR 8003

See “Recommended equipment” on page 3 for more listings.

10 The location has a wireless router already, can I use it for the jukebox?

A wireless router has all the same functionality as a wired router with the addition of wireless connections. Connect the jukebox to the router the same as with a regular router.

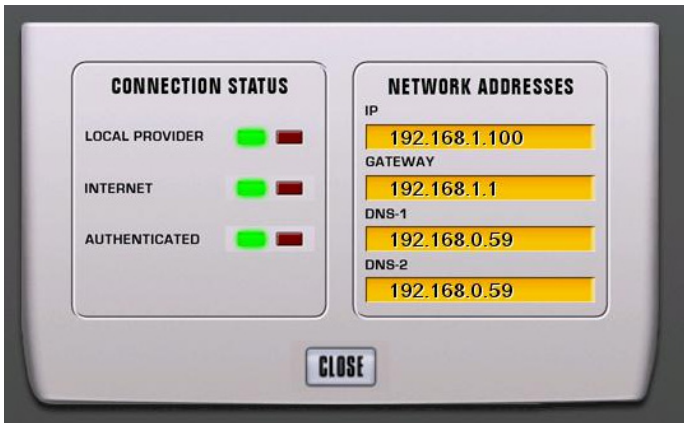
- Can I connect up my jukebox using wireless networking?

TouchTunes only recommends using wired connections. A lot of data has to be moved around and wireless connections today are slower than wired connections. Wireless connections have varying range depending on type of wireless connection, building materials, other sources of interference, performance degradation as more simultaneous computers are using the wireless connection. With that being said, some people are successfully using wireless with a TouchTunes jukebox. In order to do so, you need a wireless router and a device called a wireless bridge (sometimes called a Wireless Gaming Adapter). The wireless bridge converts a wireless signal back to a wired signal without having the computer install any special drivers or cards. The computer thinks it is only on a wired connection. Wireless devices have some compatibility issues so try to buy a wireless bridge from the same manufacturer as your wireless router.

Troubleshooting tips

If you run into difficulties, here are some common things to check.

- **Check link lights.** On most network equipment, there is a link light to show each connection has a device attached and powered on at the other end of the connection.
- **Shutdown all network equipment including the jukebox.** Power on equipment starting with the broadband modem and working your way to the jukebox last.
- **Check cabling.** Cables should be made as “straight-through” cables. Both sides are made exactly the same. The only exception would be for connecting like devices to like devices (like connecting a switch to another switch). In that case, a crossover cable is required. See the *How to make category 5 twisted-pair network cables* guide for more information.
- **Check IP addressing.** Each device needs to have a unique address on the subnet. Make sure that the correct settings are made for the subnet mask, gateway, and DNS settings. For setups involving more than one router, make sure that the routers LAN IP settings (the internal IP) are unique. Most routers by default use 192.168.0.1. One of the routers will need to be switched to use a different address like 192.168.10.1.
- **Check broadband status.** The Broadband Status (found on the Diagnostics menu) is a quick way to see if the broadband connection is working properly. All 3 lights should be green. See below for more info.



a. The lights. The status of each connection part is indicated by either a green or red light, or flashing lights.

- The green light indicates successful communication.
- The red light indicates either that the communication attempt has not been done yet or that a problem has been encountered.
- Flashing lights indicate that a communication attempt is currently in progress.

b. Communication status.

- Local Provider. If the jukebox is able to obtain its network parameters from a DHCP server (IP address, gateway and at least 1 DNS, ideally 2 DNS), then the green light will turn on. If the jukebox can't get the network parameters, the red light will turn on. A red light means that the router is not properly configured to hand out DHCP settings.
- Internet. If the jukebox is able to resolve the IP address of the TouchTunes server (using the DNS provided by the DHCP server) and reach it with a ping, then the green light will be displayed. If not, the red light will be displayed.
- Authenticated. Please note that not all software versions of the jukebox use this feature The green light beside this status will be turned on when the connection with the TouchTunes server is successfully established. If connection is not established or a problem is encountered, the red light will be turned on.

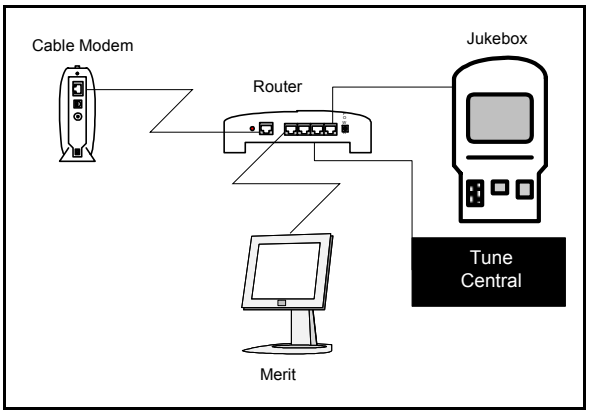
c. Network Addresses. This section displays the current network addresses in use by the jukebox. This information is provided by the DHCP server. It can be used to diagnose a problem with the configuration of the DHCP server.

- IP address. This is the IP address assigned to the jukebox by the DHCP server.
- Gateway. This is the default gateway assigned to the jukebox by the DHCP server.
- DNS-1. This is the primary DNS assigned to the jukebox by the DHCP server.
- DNS-2. This is the secondary DNS assigned to the jukebox by the DHCP server.

Sample setups

Example 1

In this example the jukebox is connected to a router which is connected to a cable modem that provides the broadband Internet connection.



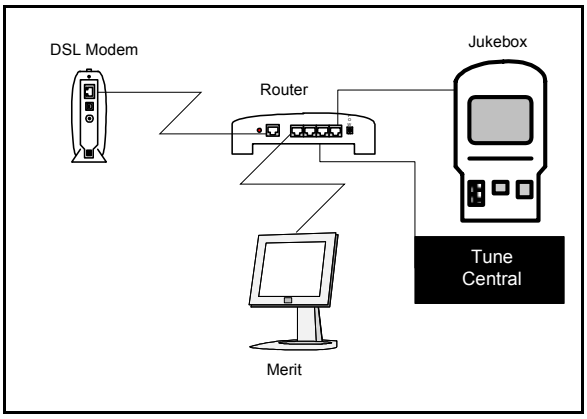
Router setup

Addressing from ISP	DHCP
Addressing to LAN (jukebox)	DHCP

This is the factory default configuration for most routers.

Example 2

In this example the jukebox is connected to a router which is connected to a DSL modem that provides the broadband Internet connection. Static addressing settings for the DSL modem. are provided by the Internet Service Provider (ISP).

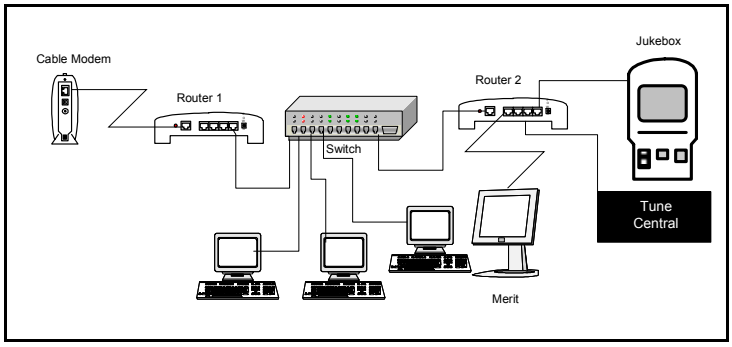


Router setup (as provided by the ISP)

Addressing from ISP	Static
• IP address:	66.243.23.210
• Subnet Mask:	255.255.255.248
• Gateway:	66.243.23.210
• DNS1:	207.66.54.129
• DNS2:	207.66.54.130
Addressing to LAN (jukebox)	DHCP

Example 3

In this example the jukebox is connected to an existing network that uses a cable modem to connect to the Internet. Since the existing network uses static IP addressing, a second router is installed to provide an IP address to the jukebox via DHCP. Note that the second router must provide this address on a different subnet than the existing network.



Router 2 setup

Addressing from router 1	Static
• IP address:	192.168.50.152
• Subnet Mask:	255.255.255.0
• Gateway:	192.168.50.1
• DNS1:	207.66.54.129
• DNS2:	207.66.54.130
Addressing to LAN (jukebox)	DHCP

Broadband site survey

Use this form to collect important configuration information about the networking setup at a location before you call TouchTunes technical support for assistance.

1. Internet Service Provider (ISP):_____

2. Type of Broadband Connection:

☐ Cable

☐ DSL

If DSL, obtain the following:

- PPPoE Username:_____
- PPPoE Password:_____

☐ T1

☐ Satellite

☐ Other_____

3. Broadband "Modem" Model:_____

4. Type of IP addressing provided by the ISP.

☐ DHCP

☐ Static

If static, obtain the following:

IP Address: _____ . _____ . _____ . _____

Subnet Mask: _____ . _____ . _____ . _____

Gateway: _____ . _____ . _____ . _____

Primary DNS: _____ . _____ . _____ . _____

Secondary DNS: _____ . _____ . _____ . _____

Note: Static IP Addressing requires a router.

5. Does the Internet connection need to be shared with other devices?

☐ No

☐ Yes (This requires a router.)

Is there an existing router?

☐ No

☐ Yes Model: _____

- Type of IP addressing the router assigns to computers.

☐ DHCP

☐ Static

If static, obtain the following:

IP Address: _____ . _____ . _____ . _____

Subnet Mask: _____ . _____ . _____ . _____

Gateway: _____ . _____ . _____ . _____

Primary DNS: _____ . _____ . _____ . _____

Secondary DNS: _____ . _____ . _____ . _____

6. Is there a firewall installed that blocks Internet traffic?

☐ No

☐ Yes

7. Is there a computer available on site that can be used to configure the routers?

☐ No

☐ Yes

TouchTunes Digital Jukebox, Inc.
3 Commerce Place, 4th Floor
Montreal, Quebec,
Canada, H3E 1H7

TouchTunes Music Corporation
180 Lexington Drive
Buffalo Grove, Il 60089

Technical Support
888-711-5853
www.touchtunes.com

Copyright © 2005 TouchTunes Music Corporation

Printed in Canada